



SEQUENCE LISTING

<110> Vaisvila, Romualdus
Morgan, Richard D.
Kucera, Rebecca B.
Claus, Toby B.
Raleigh, Elisabeth A.

<120> Method For Cloning And Producing The MseI Restriction Endonuclease

<130> NEB-181

<140> US 09/689,343

<141> 2000-10-12

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<170> PatentIn version 3.1

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<213> Micrococcus sp.

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gag gcg gac aac ctc gat ttc att caa acg ctc ccc gac gcg agc ttc 96
Glu Ala Asp Asn Leu Asp Phe Ile Gln Thr Leu Pro Asp Ala Ser Phe
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cga atg atc tac atc gat ccg ccg ttc aac aca ggg cga acg cag cgg 144
Arg Met Ile Tyr Ile Asp Pro Pro Phe Asn Thr Gly Arg Thr Gln Arg
35 40 45

ctt cag tcg ctc aag acg acc cgc tcg gtc aca ggg tcg cga gtc ggc 192
Leu Gln Ser Leu Lys Thr Thr Arg Ser Val Thr Gly Ser Arg Val Gly
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ttc aaa ggc cag acg tac gac acg gtc aag agc act ctg cac tcg tat 240
Phe Lys Gly Gln Thr Tyr Asp Thr Val Lys Ser Thr Leu His Ser Tyr
65 70 75 80

gac gac gct ttc acc gac tat tgg tcg ttc ctc gaa ccg cgt ctc ctg 288
Asp Asp Ala Phe Thr Asp Tyr Trp Ser Phe Leu Glu Pro Arg Leu Leu
85 90 95

gag gct tgg cgg ttg ctc acc cct gac ggc gcg ctc tat ctt cat ctg 336

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Asp	Tyr	Arg	Glu	Val	His	Tyr	Ala	Lys	Val	Val	Leu	Asp	Ala	Met	Phe	
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Gly	Arg	Glu	Ser	Phe	Leu	Asn	Glu	Leu	Ile	Trp	Ala	Tyr	Asp	Tyr	Gly	
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Tyr	Val	Lys	Asp	Pro	Asn	Asn	Tyr	Val	Trp	Asn	Gly	Gln	Asp	Val	Asp	
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Arg	Glu	Pro	Tyr	Met	Ala	Pro	Gly	Leu	Val	Thr	Pro	Glu	Lys	Val	Ala	
			180					185					190			
ctt	ggc	aag	ctg	ccc	acc	gac	gtc	tgg	tgg	cac	aca	atc	gtt	ccg	cct	624
Leu	Gly	Lys	Leu	Pro	Thr	Asp	Val	Trp	Trp	His	Thr	Ile	Val	Pro	Pro	
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Ala	Ser	Lys	Glu	Arg	Thr	Gly	Tyr	Ala	Thr	Gln	Lys	Pro	Val	Gly	Ile	
	210					215					220					
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Ile	Arg	Arg	Met	Ile	Gln	Ala	Ser	Ser	Asn	Glu	Gly	Asp	Trp	Val	Leu	
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Asp	Phe	Phe	Ala	Gly	Ser	Gly	Thr	Thr	Gly	Ala	Ala	Ala	Arg	Gln	Leu	
			245						250					255		
gga	cgc	cgt	ttt	gtg	ctc	gta	gac	gtc	aac	cca	gaa	gca	atc	gcg	gta	816
Gly	Arg	Arg	Phe	Val	Leu	Val	Asp	Val	Asn	Pro	Glu	Ala	Ile	Ala	Val	
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Met	Ala	Lys	Arg	Leu	Asp	Asp	Gly	Ala	Leu	Asp	Thr	Ser	Val	Thr	Ile	
		275					280					285				
gtg	cag	act	ccc	cag	agt	gac	cca	cga	acc	gac	gga	tga				903
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<213> Micrococcus sp.

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35 40 45

Leu Gln Ser Leu Lys Thr Thr Arg Ser Val Thr Gly Ser Arg Val Gly
50 55 60

Phe Lys Gly Gln Thr Tyr Asp Thr Val Lys Ser Thr Leu His Ser Tyr
65 70 75 80

Asp Asp Ala Phe Thr Asp Tyr Trp Ser Phe Leu Glu Pro Arg Leu Leu
85 90 95

Glu Ala Trp Arg Leu Leu Thr Pro Asp Gly Ala Leu Tyr Leu His Leu
100 105 110

Asp Tyr Arg Glu Val His Tyr Ala Lys Val Val Leu Asp Ala Met Phe
115 120 125

Gly Arg Glu Ser Phe Leu Asn Glu Leu Ile Trp Ala Tyr Asp Tyr Gly
130 135 140

Ala Arg Ser Lys Ser Lys Trp Pro Thr Lys His Asp Asn Ile Leu Val
145 150 155 160

Tyr Val Lys Asp Pro Asn Asn Tyr Val Trp Asn Gly Gln Asp Val Asp
165 170 175

Arg Glu Pro Tyr Met Ala Pro Gly Leu Val Thr Pro Glu Lys Val Ala
180 185 190

Leu Gly Lys Leu Pro Thr Asp Val Trp Trp His Thr Ile Val Pro Pro
195 200 205

Ala Ser Lys Glu Arg Thr Gly Tyr Ala Thr Gln Lys Pro Val Gly Ile
210 215 220

Ile Arg Arg Met Ile Gln Ala Ser Ser Asn Glu Gly Asp Trp Val Leu
225 230 235 240

Asp Phe Phe Ala Gly Ser Gly Thr Thr Gly Ala Ala Ala Arg Gln Leu
245 250 255

Gly Arg Arg Phe Val Leu Val Asp Val Asn Pro Glu Ala Ile Ala Val
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acc tcc ttg cat ctg gag agt gtg gtc act gag gga gcg gag tca ccg 96
 Thr Ser Leu His Leu Glu Ser Val Val Thr Glu Gly Ala Glu Ser Pro
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cct aat cgt ctg att tgg gcg gac aac ctg ccg cta atg gta gat ttg 144
 Pro Asn Arg Leu Ile Trp Ala Asp Asn Leu Pro Leu Met Val Asp Leu
 35 40 45

ttg gcc gaa tat gaa ggg aaa atc gat ctg atc tac gcc gat ccc cct 192
 Leu Ala Glu Tyr Glu Gly Lys Ile Asp Leu Ile Tyr Ala Asp Pro Pro
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 Phe Phe Thr Asp Arg Thr Tyr Ala Ala Arg Ile Gly His Gly Glu Asp
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tcg cgt cgt cca caa acc tgg cag ctt gca gaa gga tat acg gac gag 288
 Ser Arg Arg Pro Gln Thr Trp Gln Leu Ala Glu Gly Tyr Thr Asp Glu
 85 90 95

tgg aag gat tta gat gaa tac ctg gac ttc ctt tat cca cgc ctg gta 336
 Trp Lys Asp Leu Asp Glu Tyr Leu Asp Phe Leu Tyr Pro Arg Leu Val
 100 105 110

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 Arg Leu Gln Ala Pro Phe Leu Val Asp Phe Trp Glu Val Asp Asp Gln
 340 345 350

tgg gat ggc aaa atc ttc cgc agc cgt cat caa ggc tta cgc tcc cgc 1104
 Trp Asp Gly Lys Ile Phe Arg Ser Arg His Gln Gly Leu Arg Ser Arg
 355 360 365

ctt cag gag cag gcg ccg ctc tct cta cca ttg acc ggg aat gga ctg 1152
 Leu Gln Glu Gln Ala Pro Leu Ser Leu Pro Leu Thr Gly Asn Gly Leu
 370 375 380

ttg tgt gta cgg gta gtg agc cgt gaa ggg gaa tac tat gag ttc aca 1200
 Leu Cys Val Arg Val Val Ser Arg Glu Gly Glu Tyr Tyr Glu Phe Thr
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 35 40 45

Leu Ala Glu Tyr Glu Gly Lys Ile Asp Leu Ile Tyr Ala Asp Pro Pro
 50 55 60

Phe Phe Thr Asp Arg Thr Tyr Ala Ala Arg Ile Gly His Gly Glu Asp
 65 70 75 80

Ser	Arg	Arg	Pro	Gln	Thr	Trp	Gln	Leu	Ala	Glu	Gly	Tyr	Thr	Asp	Glu	85	90	95
Trp	Lys	Asp	Leu	Asp	Glu	Tyr	Leu	Asp	Phe	Leu	Tyr	Pro	Arg	Leu	Val	100	105	110
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Asp	Trp	His	Ala	Asn	Ala	Tyr	Val	Arg	Val	Leu	Leu	Asp	Glu	Ile	Phe	130	135	140
Gly	Arg	Gln	Arg	Phe	Leu	Asn	Glu	Ile	Val	Trp	Ile	Tyr	His	Gly	Pro	145	150	155
Ser	Ala	Ile	Arg	Arg	Ala	Phe	Lys	Arg	Lys	His	Asp	Thr	Ile	Leu	Val	165	170	175
Tyr	Val	Lys	Gly	Glu	Asn	Tyr	Thr	Phe	Asn	Ala	Asp	Ala	Val	Arg	Gln	180	185	190
Pro	Tyr	His	Pro	Ser	Xaa	His	Lys	Thr	Phe	Ala	Ser	Ser	Pro	Lys	Ala	195	200	205
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Ser	Ser	Asn	Ala	Gly	Asp	Leu	Val	Ala	Asp	Phe	Phe	Cys	Gly	Ser	Gly	260	265	270
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Asp	Ala	Ser	Trp	Arg	Ala	Val	His	Val	Thr	Arg	Thr	Arg	Leu	Leu	Arg	290	295	300
Glu	Gly	Val	Ser	Phe	Thr	Phe	Glu	Arg	Gln	Glu	Thr	Phe	Thr	Leu	Pro	305	310	315
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Trp	Asp	Gly	Lys	Ile	Phe	Arg	Ser	Arg	His	Gln	Gly	Leu	Arg	Ser	Arg	355	360	365
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ctg Leu	atc Ile	tac Tyr 35	atc Ile	gat Asp	cct Pro	ccg Pro	ttc Phe 40	aac Asn	acc Thr	gga Gly	aag Lys	gtt Val 45	cag Gln	gag Glu	cgc Arg	144
act Thr	cag Gln 50	ctc Leu	aaa Lys	acg Thr	gtg Val	cgc Arg 55	tcc Ser	gag Glu	tgg Trp	ggc Gly	gat Asp 60	cgc Arg	gtc Val	gga Gly	ttc Phe	192
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gcc Ala	cat His	cgt Arg	gtt Val 100	ctg Leu	gcg Ala	ccg Pro	cac His	ggg Gly 105	tgc Cys	ctc Leu	tac Tyr	ttt Phe 110	cac His	gtc Val	gac Asp	336
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cgt ccg aag gac agg tgg cct cct aag cac gac aac atc ctg ctc tac Arg Pro Lys Asp Arg Trp Pro Pro Lys His Asp Asn Ile Leu Leu Tyr 145 150 155 160	480
gcc aag act ccc ggt cgc cac gtg ttc aat gcg gac gaa atc gag cgc Ala Lys Thr Pro Gly Arg His Val Phe Asn Ala Asp Glu Ile Glu Arg 165 170 175	528
att ccc tac atg gct ccg ggc ctg gtt ggc ccc gaa aag gca gcc cgt Ile Pro Tyr Met Ala Pro Gly Leu Val Gly Pro Glu Lys Ala Ala Arg 180 185 190	576
gga aaa ctg cca acc gac acg tgg tgg cat acg atc gtt ccg acc agc Gly Lys Leu Pro Thr Asp Thr Trp Trp His Thr Ile Val Pro Thr Ser 195 200 205	624
ggc tcc gag aag acc ggg tat cca acc cag aaa cct tta ggg att ctc Gly Ser Glu Lys Thr Gly Tyr Pro Thr Gln Lys Pro Leu Gly Ile Leu 210 215 220	672
cgc cgt att gtg cag gca tcg tct cat ccg ggg gca gtc gtg ctc gac Arg Arg Ile Val Gln Ala Ser Ser His Pro Gly Ala Val Val Leu Asp 225 230 235 240	720
ttc ttc gcc ggc agt ggg aca aca ggg gta gcg gct ttt gag ttg ggc Phe Phe Ala Gly Ser Gly Thr Thr Gly Val Ala Ala Phe Glu Leu Gly 245 250 255	768
cgg cgt ttc att ctg gtc gat aac cat ccg gag gcc ctc cag gtg atg Arg Arg Phe Ile Leu Val Asp Asn His Pro Glu Ala Leu Gln Val Met 260 265 270	816
gcc agg cgc ttc gac ggc atc gag ggg atc gaa tgg gtg ggc ttc gat Ala Arg Arg Phe Asp Gly Ile Glu Gly Ile Glu Trp Val Gly Phe Asp 275 280 285	864
ccg aca ccg tac cag aag ggc gca aag cag cgc cgc tcc tgc ccg gcg Pro Thr Pro Tyr Gln Lys Gly Ala Lys Gln Arg Arg Ser Cys Pro Ala 290 295 300	912
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Leu	Ile	Tyr	Ile	Asp	Pro	Pro	Phe	Asn	Thr	Gly	Lys	Val	Gln	Glu	Arg	
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Thr	Gln	Leu	Lys	Thr	Val	Arg	Ser	Glu	Trp	Gly	Asp	Arg	Val	Gly	Phe	
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Gln	Gly	Arg	Arg	Tyr	Glu	Ser	Ile	Val	Val	Gly	Lys	Lys	Arg	Phe	Thr	
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Asp	Phe	Phe	Asp	Asp	Tyr	Leu	Ala	Phe	Leu	Glu	Pro	Arg	Leu	Val	Glu	
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Ala	His	Arg	Val	Leu	Ala	Pro	His	Gly	Cys	Leu	Tyr	Phe	His	Val	Asp	
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Tyr	Arg	Glu	Val	His	Tyr	Cys	Lys	Val	Leu	Leu	Asp	Gly	Ile	Phe	Gly	
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Arg	Glu	Ala	Phe	Leu	Asn	Glu	Ile	Ile	Trp	Ala	Tyr	Asp	Tyr	Gly	Gly	
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Arg	Pro	Lys	Asp	Arg	Trp	Pro	Pro	Lys	His	Asp	Asn	Ile	Leu	Leu	Tyr	
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Ile	Pro	Tyr	Met	Ala	Pro	Gly	Leu	Val	Gly	Pro	Glu	Lys	Ala	Ala	Arg	
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Gly	Lys	Leu	Pro	Thr	Asp	Thr	Trp	Trp	His	Thr	Ile	Val	Pro	Thr	Ser	
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 Ser Ala Ala Asn Leu Ala Asp Arg Tyr Val Ala Ser Glu Asp Asp Pro
 20 25 30

tgg gtc ggc agc ccg ttc gag tgg atc ctt cgc gtt cca tcc aga acg 144
 Trp Val Gly Ser Pro Phe Glu Trp Ile Leu Arg Val Pro Ser Arg Thr
 35 40 45

aag ggc gcg gtc ggt gag ctg ctc gtg agc gaa tgg gct aat gcc aaa 192
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 50 55 60

ggc ctc cgt gtg aag agg tcg ggg tcc agc gat gcg gac cgc gtg atc 240
 Gly Leu Arg Val Lys Arg Ser Gly Ser Ser Asp Ala Asp Arg Val Ile
 65 70 75 80

aac ggg cat cgc atc gag atc aag atg tcg act ttg tgg aag tcc ggc 288
 Asn Gly His Arg Ile Glu Ile Lys Met Ser Thr Leu Trp Lys Ser Gly
 85 90 95

ggc ttc aag ttt cag cag atc cgg gat cag gag tac gac ttt tgc ctc 336
 Gly Phe Lys Phe Gln Gln Ile Arg Asp Gln Glu Tyr Asp Phe Cys Leu
 100 105 110

tgc ctt ggg atc agc ccg ttc gaa gtg cac gcg tgg ctg ctg ccc aaa 384
 Cys Leu Gly Ile Ser Pro Phe Glu Val His Ala Trp Leu Leu Pro Lys
 115 120 125

gac cta ttg ctt gag tac gtg att ggt cac atg ggt cag cac acc ggc 432
 Asp Leu Leu Leu Glu Tyr Val Ile Gly His Met Gly Gln His Thr Gly
 130 135 140

gcg agc ggg agc gac act gcg tgg ctg ggg ttc cca gcg gac gag ccg	480
Ala Ser Gly Ser Asp Thr Ala Trp Leu Gly Phe Pro Ala Asp Glu Pro	
145 150 155 160	

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Tyr Asp Trp Met Arg Pro Phe Gly Gly Arg Leu Gly His Val Glu Asp	
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Lys Gly Ala Val Gly Glu Leu Leu Val Ser Glu Trp Ala Asn Ala Lys
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Asn Gly His Arg Ile Glu Ile Lys Met Ser Thr Leu Trp Lys Ser Gly
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Gly Phe Lys Phe Gln Gln Ile Arg Asp Gln Glu Tyr Asp Phe Cys Leu
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Cys Leu Gly Ile Ser Pro Phe Glu Val His Ala Trp Leu Leu Pro Lys
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